USEA Reports

Nuclear Energy Institute Reports

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With nuclear power facing an uncertain future in many countries, the world risks a steep decline in advanced economies that could result in billions of tons of additional carbon emissions. Nuclear power is currently the second largest source of low-carbon electricity today, with 452 operating reactors globally. This accounts from roughly 10% of global electricity supply. Nuclear energy has long been the leading source of low-carbon electricity in advanced economies, providing 18% of supply in 2018. However, nuclear energy is quickly losing ground. Despite 11.2 GW of nuclear energy being produced globally – the largest number since 1990 – the large majority of these additions were produced in China and Russia. Further absences of nuclear energy could result in 4 billion tons of carbon emissions in.

A coming issue for nuclear power is that many of the plants are reaching their designed lifetime and are will likely not have further lifetime extensions due to the sheer cost. The estimated cost of extending the operational life for at least 10 years ranges from $500 million to $1 billion depending on the condition of the state. 25% of plants in advanced economies are expected to shut down by 2025. Difficult market conditions have created a barrier to lifetime investment. Low wholesale electricity prices in many advanced economies is putting nuclear energy at risk of shutting down. In the United States alone, 90 reactors have operational licenses through 60 years, yet several have already retired early. This is largely due to low wholesale electricity prices.

It is recommended that we design the electricity market in a way that properly values the system services needed to maintain electricity. We need to ensure that providers of energy services are compensated in a competitive and non-discriminatory way. We must also support investment in these energy solutions.

World Resources Institute

The solutions to a lower-carbon future are available. The world does not have the luxury to wait to implement them. We must move quickly to move away from carbon-intensive power, managing and measuring our power by its carbon pollution. Reducing emissions requires the adoption of a low-cost, balanced energy portfolio that can be built quickly at reasonable cost. All attributes of alternative energy sources—including carbon emissions, capacity and reliability—need to be considered in assembling the portfolio. Natural gas plants will play an enabling role as flexible assets in helping to balance the grid with substantial renewables and enable rapid deployment. In addition, other zero-carbon assets, such as nuclear and CCS, integrate well with a renewable portfolio, decreasing the need for gas and storage.

Addressing climate change will require trillions of dollars in expenditure, coordination across all countries and the deployment of multiple technologies at scale. To put a person on the moon, the United States set a clear objective and then deployed all resources available to achieve it. The world will not solve a problem as complicated and formidable as climate change without setting an equally clear objective—reducing carbon dioxide emissions to near zero by 2050 and engaging all resources (wind, solar, energy efficiency, storage, nuclear, CCS and robust transmission) at significant scale to meet it.

PJM Report

On June 5, PJM published a report that emphasizes the benefits of nuclear energy for electricity consumers and the environment. PJM concluded that actions taken to preserve three nuclear plants in Ohio and Pennsylvania would reduce electricity costs by $474 million and save more than 15 million tons of carbon emissions.

These findings echo a growing consensus that maintaining existing nuclear plants supports efforts to lower carbon emissions and meet our climate goals. However, PJM presented its findings in a confusing summary that has been widely misreported by the media. NEI is working with the media – directly and through allies – to highlight the report's findings that support the preservation of the nuclear plants in Ohio and Pennsylvania.

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United States Energy Association